

U. S. Fish and Wildlife Service

# Browns Park

*National Wildlife Refuge*



*Draft Comprehensive  
Conservation Plan*

Browns Park  
National Wildlife Refuge

Draft  
Comprehensive Conservation Plan

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# Introduction and Background

## Background

Browns Park National Wildlife Refuge (NWR) has been a part of the National Wildlife Refuge System (System) and the U.S. Fish and Wildlife Service (Service) since 1963. Located in northwest Colorado along the Green River as it flows through the remote valley known as Browns Park (or Browns Hole), the 13,455-acre Refuge was formally established by Public Land Order 4973, December 11, 1970 (see Map 1). Under the Migratory Bird Conservation Act and the Refuge Recreation Act, the purposes of Browns Park NWR are to provide sanctuary for migratory birds, to provide for suitable fish and wildlife dependent recreation, protection of natural resources, and conservation of endangered and threatened species.

The Refuge possesses three key wildlife values: its wetlands provide important migration and breeding habitat for waterfowl and waterbirds, riparian habitat provides important migration and breeding habitat for songbirds, and Refuge uplands provide critical winter habitat for large mammals such as mule deer, elk, and pronghorn. Browns Park NWR also provides unique and important values for people. Wildlife, solitude, scenery, and cultural history combine to make the Refuge a national treasure (see Map 2).

## Purpose and Need for Plan

The U.S. Fish and Wildlife Service is the principal Federal agency with responsibility for conserving, protecting, and enhancing fish and wildlife and their habitats. The Service manages a diverse network of more than 500 National Wildlife Refuges, a System which encompasses more than 92 million acres of public land and water which provides habitat for more than 5,000 species of birds, mammals, fish, and insects.

Past management of the Refuge has varied greatly. Although past managers used the best information available to them at the time, oftentimes their efforts were short-term, disjointed, and counterproductive. As a result, many management issues went unaddressed. It is now apparent that the need exists for a long-term comprehensive plan that considers the true purpose and values of the Refuge, these unaddressed issues, and all aspects of Refuge management.

Comprehensive Conservation Plans (CCP) were mandated by the National Wildlife Refuge System Improvement Act of 1997 (Act). The Act requires that all lands and waters of the National Wildlife Refuge System be managed in accordance with an approved Plan that guides management decisions, sets forth strategies for achieving Refuge purposes, and contributes to the System mission.

Benefits of the Plan are several: better long-term continuity in Refuge management, better understanding of Refuge management actions for Refuge staff members and visitors, a clear description of future development and funding needs, and the assurance that Refuge management will fulfill the mission of the System and the specific purposes for which the Refuge was established.

## Planning Process

The Browns Park National Wildlife Refuge Comprehensive Conservation Plan is guided by the established purposes of the Refuge, the goals of the National Wildlife Refuge System, U.S. Fish and Wildlife Service compatibility standards, and other Service policies, plans, and laws directly related to Refuge management. This Plan establishes the goals, objectives, management guidelines and strategies, and monitoring and evaluation strategies for the Refuge.

The Plan will be used to prepare step-down management plans, revise existing plans, and performance standards and budgets which describe specific actions to be taken by the Refuge over the next 15 years. Given that new information and guidance frequently arise, the Plan will be updated as necessary. The effects of major management actions will be documented to provide information to future managers as to the effects of actions taken.

A questionnaire was distributed to Refuge neighbors and some of the known Refuge users in an effort to get comments and ideas. The questionnaire was also distributed at two open houses, one held in Craig, Colorado and the other at Refuge headquarters. Although the turnout was light at the open houses, responses to the questionnaires were received from a number of individuals.

## Step-Down Management Plans

In addition to administrative plans required by national policies and guidance, step-down plans that will need to be developed include:

### P Wildlife Conservation Plan (Completion Date: 2000)

This will further describe site-specific actions necessary to manage or protect wildlife within the Refuge and the surrounding ecosystem.

### P Habitat Management Plan (Completion Date: 2000)

The Habitat Management Plan will address long-term management of the broad habitat types found on the Refuge. It will include methods to monitor the health and effectiveness of treatments on habitats. Individual sections featuring each broad habitat type on the Refuge (marsh, riparian, grassland, semidesert shrubland, pinyon-juniper) will be included in the Plan. This is a departure from previous stand-alone plans. The marsh habitat management section will replace the current Water Management Plan. The Wildlife Inventory Plan and the Fire Management Plan will also be incorporated into this Plan.

### P Public Use Plan (Completion Date: 2000)

This will address the long-term development of public use facilities and the management of public use on the Refuge. The Hunting Plan, which addresses the specifics of hunting on the Refuge including species, locations, and special regulations, will now be a section of this Plan.

Additional step-down plans that will need modification or amendment as a result of this CCP include Fire Management, Grassland Management, Hunting, Water Management, Wildlife Inventory, and Land Management. The Refuge had previously developed a Master Plan that will be superseded and replaced by the CCP.

## National Wildlife Refuge System Mission

National wildlife refuges are all about wildlife. The mission of the National Wildlife Refuge System is “to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”









## Planning Issues and Opportunities

Issues to be addressed in the Plan were identified by the public, the Refuge staff, and other Service employees. A formal effort was made to obtain input from Refuge neighbors and Refuge visitors, though this can be difficult in such a remote location. The range of issues are as diverse as the individuals providing them; however, several common themes emerged. Issues fall into broad categories of Wildlife, Habitat, and People and are discussed below.

### Wildlife

Refuge wildlife species are far ranging and impacted by activities that occur beyond the Refuge boundary. The opportunity exists for Refuge staff to engage in wildlife conservation in the surrounding ecosystem and to better protect and manage the Refuge through expansion.

### Habitat

Opportunities exist to better focus Refuge habitat management efforts on the needs of special status species and other wildlife for which the Refuge provides essential habitat.

The Nelson and Warren wetland units are plagued by an overabundant canopy coverage of emergent vegetation that makes them less useful for many species of waterfowl, shorebirds, and other waterbirds. The opportunity exists to change the water management regime in these units to better control coverage of emergent vegetation.

Man-made islets in the Hoy wetland unit are a nesting sink for ducks (a place where nesting success is so low that it negatively affects a population). Ducks are attracted to these islets but are frequently lost to predators. The opportunity exists to remove these islets.

The Horseshoe and Grimes wetland units provide very little habitat as compared to the costs of operating them. The units have never held water well, and the cost of continuously pumping to maintain them is high. The area is infested with nonnative plants. The opportunity exists to restore these units to seasonal wet meadow or upland habitats. Water rights currently used to maintain these units must be evaluated for transfer to other uses.

Riparian habitat is declining along the Green River on the Refuge due to the operation of Flaming Gorge Dam and the continuing invasion of nonnative plants. The opportunity exists to restore this habitat.

### People

Facilities to meet the minimum needs of Refuge visitors are lacking or outdated. Orientation kiosks are not placed at the entrance points of the Refuge, and many first-time visitors get lost. Opportunities to inform visitors and raise their appreciation for wildlife are being missed. Photography and other wildlife dependent recreation is currently limited. Some facilities on the Refuge do not meet the Federal standards of accessibility for people with disabilities. The opportunity exists to more fully develop public use on the Refuge.

## Refuge and Resource Description

### Geographic/Ecosystem/Flyway Setting

Biogeographers have divided North America into provinces; natural regions that share similar climate, soils, topography, and vegetation. The Refuge lies within the Middle Rocky Mountains province; however, it is also adjacent to the Wyoming Basin province and the Colorado Plateau province. The Refuge includes a mixture of habitats from all three provinces and consequently provides habitat for 300 terrestrial wildlife species (222 birds, 68 mammals, 11 reptiles, and 4 amphibians - listed in Appendix A).

In 1994, refuges were directed to become involved with wildlife conservation in the ecosystem that surrounds them. Part of the rationale was that wildlife on field stations are affected by influences way beyond the station's boundary. The U.S. Fish and Wildlife Service is organized into watershed-based ecosystems, and Browns Park lies in the Upper Colorado River Ecosystem. Seedskaadee National Wildlife Refuge in Wyoming and Ouray National Wildlife Refuge in Utah are two other National Wildlife Refuges included in this ecosystem. The three Refuges share many similarities. All are located along the Green River and have significant amounts of wetland and riparian habitat.

The Upper Colorado River Ecosystem incorporates the watersheds, headwaters, tributaries (including the Green River), and mainstem of the Colorado River in Wyoming, Utah, and Colorado. The aquatic systems in this region are vital not only for native wildlife but also for millions of people in seven arid southwestern states. Once naturally diverse, many of these systems have been fragmented and degraded as a result of water development projects, land-use practices, and introduction of nonnative animals and plants. In 1994, an interagency planning team met to develop broad goals and objectives for the Upper Colorado River Ecosystem. Resource issues identified for the Ecosystem are closely related to resource issues and concerns raised by the staff of Browns Park NWR. Goals developed by the ecosystem planning team are summarized below.

P Goal: Restore and maintain an aquatic system capable of supporting the diversity of native aquatic communities to achieve recovery of listed and candidate species and prevent the need for future listings.

P Goal: Reverse the current trend; restore, maintain, and enhance the species composition, a real extent and spacial distribution of wetland/riparian habitats.

P Goal: Promote terrestrial biological diversity and ecosystem stability through sound land management practices thereby avoiding fragmentation, degradation, and loss of terrestrial habitats.

The Refuge is located west of the continental divide and considered part of the Pacific Flyway. It is also included in the Intermountain West Joint Venture region of the North American Waterfowl Management Plan developed to restore waterfowl populations in North America.

Other regional wildlife resource planning efforts that may affect management of the Refuge have been conducted by the Service, other Federal agencies, States, and conservation interest groups. Such initiatives also include cooperative management plans for Pacific Flyway migratory bird species. Species for which plans exist include the Rocky Mountain population of Canada geese, western Canadian arctic snow geese, Pacific Flyway Ross' goose, Rocky Mountain population of greater sandhill crane, Rocky Mountain population of trumpeter swan, western population of tundra swan, and Western Management Unit of mourning dove.

### Refuge Habitats and Wildlife

Climate, soils, and topography ultimately determine vegetation communities. Vegetation communities are habitats for wildlife. Many wildlife species show strong preferences for certain habitat types. They have evolved along with their habitats and, as a result, are highly dependent on them.

The habitats on the Refuge can be separated into five broad types: wetlands, riparian, grassland, semidesert shrubland, and pinyon-juniper. Rock/cliff can be considered a habitat sub-type, as it occurs within the five broad habitats, and many species make use of it. These five broad habitats and the one sub-type are discussed below as they exist on the Refuge. Wildlife species that use the Refuge and are dependent on these habitat types for breeding are also discussed.

## Wetlands

Approximately 1,245 acres of wetland habitat exists on the Refuge. This includes both deep-water and shallow marshes and wet meadows. Hardstem bulrush (*Scirpus acutus*) and cattail (*Typha latifolia*) are the dominant plant species. This habitat exists in seven active marsh units throughout the length of the Refuge adjacent to the Green River (see Map 3). From upstream to downstream, the names of the active marsh units are: Butch Cassidy, Hog Lake, Flynn, Spitzie, Warren, Nelson, and Hoy.

Refuge species that depend on this habitat for breeding include pied-billed grebe, American bittern, gadwall, American wigeon, blue-winged teal, cinnamon teal, northern shoveler, northern pintail, green-winged teal, canvasback, redhead, ring-necked duck, ruddy duck, Virginia rail, sora, American coot, marsh wren, red-winged blackbird, yellow-headed blackbird, tiger salamander, Woodhouse's toad, northern leopard frog, mink, and muskrat.

The white-faced ibis is a candidate species for listing under the Endangered Species Act of 1973. It does not currently nest on the Refuge; however, approximately 300 utilize wetland habitat on the Refuge during spring and fall migration.

The American bittern and northern harrier are listed as species of management concern. Wetlands on the Refuge provide important breeding habitat for both species. Bitterns nest in large areas of emergent vegetation, especially hardstem bulrush. Harriers prefer large areas of dense, high grass, usually adjacent to wetlands.

A great number of migratory waterbirds rely on wetland habitat on the Refuge for foraging and resting during spring and fall migration. Browns Park contains the only significant wetland habitat for miles around. Peak use can total approximately 20,000 waterbirds in April-May and again in October.

The Nelson and Warren wetland units have a history of problems with overabundant emergent vegetation. Up to 90 percent of these units are covered with hardstem bulrush. Very little open water exists making these units less valuable for a variety of species.

The Hoy wetland unit provides excellent wetland habitat with the exception of approximately 50 man-made islets adjacent to the dike. These islets were intended to provide nesting sites for ducks. Ducks were attracted to the islets; however, nest predators, such as raccoons, soon learned to reach the islets and search for nests. Such a high percentage of nests were destroyed that the islets were actually detrimental to the local duck breeding population.

The Horseshoe and Grimes wetland units were retired in 1996 due to their inability to hold water, the continuing spread of nonnative plants, and the high costs of pumping water, maintaining equipment, and applying herbicides. Historically, the units' value to wildlife was low.

## Riparian

This habitat includes the narrow ribbon of trees along the creeks and rivers on the Refuge. Approximately 1,112 acres of riparian habitat exists on the Refuge. The dominant plant species are Fremont's cottonwood (*Populus fremontii*), narrow-leaved cottonwood (*Populus angustifolia*), river birch (*Betula fontinalis*), buffaloberry (*Shepherdia argentea*), three-leaved sumac (*Rhus aromatica*), boxelder (*Acer negundo*), and sandbar willow (*Salix exigua*). On the Refuge, this habitat exists along Beaver Creek, Vermillion Creek, and the Green River (see Map 4).

Riparian habitat along the Green River has been declining since the construction of Flaming Gorge Dam upstream. Riparian plants evolved with a dynamic river hydrologic regime. Spring flooding and the deposition of fine textured soil was especially important to cottonwood. The dam has eliminated spring flooding, sifted out the fine textured soils, and stabilized the water regime allowing nonnative plants to thrive and spread. Perennial pepperweed (*Lepidium latifolium*), saltcedar (*Tamarix ramosissima*), Russian knapweed (*Centaurea repens*), and leafy spurge (*Euphorbia esula*) have been the most troublesome nonnative plants. Pepperweed occupies 54 acres in pure stands but is scattered over approximately 1,000 acres where it is mixed in with other species. Likewise, saltcedar occupies 12 acres in pure stands but is scattered over approximately 100 acres. Russian knapweed occurs in scattered clumps on approximately 100 acres. Leafy spurge occurs as widely scattered individual plants (fewer than 100 plants total) over approximately 10 acres.

Refuge species that depend on this habitat for breeding include great blue heron, Barrow's goldeneye, common merganser, spotted sandpiper, yellow-billed cuckoo, western screech-owl, willow flycatcher, Eastern kingbird, house wren, yellow warbler, Bullock's oriole, moose, beaver, and river otter.

Riparian forest provides habitat for the greatest number of migratory bird species on the Refuge. Countless numbers and species of birds rely on the riparian forest of the Green River to migrate to and from their breeding areas to the north. Refuge bird inventory work indicates that this habitat is especially important to migrating warbling vireo, orange-crowned warbler, yellow warbler, northern waterthrush, MacGillivray's warbler, Wilson's warbler, yellow-breasted chat and other species. Birds use this habitat for foraging, roosting, and cover during migration. Forest breeding birds that winter in Central and South America are not capable of migrating through the arid semidesert shrubland of Utah, Colorado, and Wyoming. Instead, they rely on the north-south riparian forest corridor of the Colorado and Green Rivers to get them to breeding areas at higher latitudes and elevations.

## Grassland

Approximately 1,906 acres of grassland habitat exists on the Refuge. Dominant plant species in this habitat include alkali sacaton (*Sporobolus airoides*), inland saltgrass (*Distichlis spicata*), western wheatgrass (*Pascopyrum smithii*), and Great Basin wildrye (*Elymus cinereus*). Grasslands are found primarily along Beaver Creek, the Green River, and Ryegrass draw (see Map 5).

Refuge species that depend on this habitat for breeding include savannah sparrow and montane vole. Refuge grasslands provide winter range for approximately 400 elk during normal winters; harsh winters may bring as many as 1,200. Mule deer also forage in grassland and other areas during winter.

## Uplands-Semidesert Shrubland

Approximately 7,930 acres of semidesert shrubland exists on the Refuge. The dominant plant species are big sagebrush (*Artemisia tridentata*), black sagebrush (*Artemisia nova*), greasewood (*Sarcobatus vermiculatus*), rabbitbrush (*Chrysothamnus spp.*), spiny hopsage (*Grayia spinosa*), shadscale (*Atriplex confertifolia*), winterfat (*Krascheninnikovia lanata*), Indian ricegrass (*Oryzopsis hymenoides*), needle-and-thread (*Stipa comata*), sand dropseed (*Sporobolus cryptandrus*), and cheatgrass (*Bromus tectorum*). This habitat covers much of the uplands throughout the Refuge.

Refuge species that rely on this habitat for breeding include sage grouse, burrowing owl, short-eared owl, loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, Ord's kangaroo rat, and sagebrush vole.

Loggerhead shrike and Brewer's sparrow are listed as species of management concern. Semidesert shrublands on the Refuge provide important breeding habitat for both species. Loggerhead shrike have very specific habitat requirements. They prefer nesting in isolated clumps of greasewood or other shrubs in close proximity to powerlines for perching, barbed wire fences for food caches, and unvegetated areas for foraging. Brewer's sparrow prefers nesting in arid shrubs such as greasewood or sagebrush of moderate height (2 to 5 feet) and high to moderate density.



Loggerhead Shrike

Sage grouse are declining throughout their range in western states. Two leks have been located on the Refuge, and it is likely several others exist.

The Refuge provides winter range for mule deer and, to a lesser extent, pronghorn. Approximately 1,000 mule deer winter on the Refuge each year. Pronghorn usually number less than 50.













## Uplands-Pinyon-Juniper

Approximately 1,083 acres of pinyon-juniper habitat exists on the Refuge. As the name implies, the dominant plant species are Colorado pinyon pine (*Pinus edulis*) and Utah juniper (*Sabina osteosperma*). Pinyon-juniper is found in homogeneous stands along the southern border and in scattered clumps throughout the Refuge.

Refuge species that rely on this habitat for breeding include gray flycatcher, pinyon jay, juniper titmouse, black-throated gray warbler, and pinyon mouse.

Active management of this habitat has not occurred in the past nor is any planned for the future.

## Uplands-Rock/Cliff

Although a great deal of this sub-habitat exists on the Refuge, it is mostly interspersed with pinyon-juniper woodland making the acreage difficult to determine. On the Refuge, this habitat is found along the Green River above Hog Lake and along the southern border.

Refuge species that rely on this sub-habitat for breeding include turkey vulture, golden eagle, peregrine falcon, prairie falcon, white-throated swift, common raven, rock wren, canyon wren, California myotis, western small-footed myotis, long-eared myotis, little brown myotis, fringed myotis, long-legged myotis, western pipistrelle, big brown bat, spotted bat, Townsend's big-eared bat, pallid bat, cliff chipmunk, spotted skunk, and tree lizard.

## Special Status Species

For the purposes of this Plan, a special status species is one that is designated as an Endangered or Threatened Species, Candidate Species, or Species of Management Concern under the Endangered Species Act of 1973 (as amended) and/or State protective acts. Twenty-two special status wildlife species use the Refuge. However, it provides important habitat for only eight; American bittern, white-faced ibis, bald eagle, northern harrier, peregrine falcon, loggerhead shrike, Brewer's sparrow, and river otter. The northern harrier, loggerhead shrike, and Brewer's sparrow are the most abundant special status species on the Refuge.

The federally endangered Colorado squawfish inhabits the Green River. The Refuge does not have control of the habitat of the squawfish as the State of Colorado has jurisdiction over the River below the high water line. Squawfish are infrequently caught by Refuge anglers and are observed from riverbanks on the Refuge. Service biologists working on the recovery of the squawfish do not believe that the fish are breeding in this reach of the River. They feel the operation of Flaming Gorge Dam has lowered the water temperature of the Green River to the extent that it is too cold for squawfish spawning. For this reason, it is unlikely that the reach of the Green River passing through the Refuge will be designated as critical habitat for the species.

The river otter is a State-listed Endangered Species. Otters reintroduced to the Green River below Flaming Gorge Dam have colonized the Refuge and are frequently sighted in the River and in Refuge marshes each year. Young of the year have also been sighted, indicating that breeding is occurring on or adjacent to the Refuge.

The peregrine falcon and bald eagle are federally listed species that use the Refuge. Peregrines, listed as an Endangered Species, are frequently observed hunting for waterbirds over Refuge marshes during the spring, summer, and fall. Nesting occurs adjacent to the Refuge in Lodore Canyon within Dinosaur National Monument. Bald eagles, listed as a Threatened species, are found in riparian habitat on the Refuge during the winter. These birds use the large trees for perch sites where they hunt for fish in the River. Approximately 30 eagles spend the winter on the Refuge each year.

The Ute ladies-tresses orchid (*Spiranthes diluvialis*) is a federally listed Threatened Species. It has been documented along the Green River in Browns Park and recently found within the floodplain of the Green River on the Refuge. Gibben's beardtongue (*Penstemon gibbensii*) is a candidate for Federal listing as an Endangered or Threatened Species. It occurs on steep white shale slopes above Hog Lake on the Refuge and throughout Browns Park. Table 1 lists special status wildlife species occurring on the Refuge.

Table 1. Special Status Wildlife Species of Browns Park NWR

<u>Species</u>	<u>Status</u>	<u>Abundance</u>	<u>Primary Habitat Use</u>
Bald Eagle	THRE	Comm Wint Rare Summ	Riparian
Peregrine Falcon	ENDA	Unco Migr Unco Summ	Marsh
White-faced Ibis	CAND	FaCo Migr Rare Summ	Marsh
Trumpeter Swan	CAND	Rare Wint	Marsh
Northern Goshawk	CAND	Rare Migr	Riparian
Ferruginous Hawk	CAND	Rare Migr	SD Shrubland
Mountain Plover	CAND	Rare Migr	SD Shrubland
Black Tern	CAND	Unco Migr	Marsh
Burrowing Owl	CAND	Rare Migr Rare Summ	SD Shrubland
Common Loon	SPMC	Rare Migr	Marsh
American Bittern	SPMC	Unco Migr Unco Summ	Marsh
Northern Harrier	SPMC	Comm Migr FaCo Summ	Grassland
Long-billed Curlew	SPMC	Rare Migr Rare Summ	Grassland
Yellow-billed Cuckoo	SPMC	Rare Migr Rare Summ	Riparian
Short-eared Owl	SPMC	Unco Migr Unco Summ	SD Shrubland
Olive-sided Flycatcher	SPMC	Unco Migr	Riparian
Gray Flycatcher	SPMC	FaCo Migr FaCo Summ	PJ Woodland
Bewick's Wren	SPMC	FaCo Migr FaCo Summ	PJ Woodland
Loggerhead Shrike	SPMC	Comm Migr Comm Summ	SD Shrubland
Virginia's Warbler	SPMC	FaCo Migr Unco Summ	Riparian
Brewer's Sparrow	SPMC	Comm Migr Comm Summ	SD Shrubland
River Otter	ENDA*	Unco Resi	Marsh

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KEY:

*Status*

ENDA= Endangered;   \*= State-listed  
 SPMC= Species of Management Concern  
 THRE= Threatened  
 CAND= Candidate for listing as Endangered or Threatened

*Abundance*

Abun= Abundant  
 Comm= Common  
 FaCo= Fairly Common  
 Unco= Uncommon  
 Rare= Rare

*Season*

Resi= Resident (Year-round)  
 Migr= Migrant (Spring and/or Fall)  
 Wint= Winter  
 Summ= Summer

## Public Use

Browns Park NWR is located in the remote northwest corner of Colorado, 95 miles from the nearest town of Craig, Colorado. The Refuge offers a number of wildlife-dependent recreation opportunities for people in a setting that combines abundant wildlife, beautiful scenery, solitude, and rich old-west history. This unique mixture can be found nowhere else in the System and makes the Refuge one of its hidden treasures. Access and location limit visitation to about 10,000 visits each year. Plans underway to pave the primary access route from Utah into Browns Park will likely increase visitation.

Wildlife-dependent recreational activities occurring on the Refuge primarily include the six priority public uses defined in the Refuge System Improvement Act: hunting, fishing, wildlife observation, photography, environmental education, and interpretation.

Hunting is allowed on the Refuge for mule deer, elk, cottontail rabbit, ducks, geese, coots, and mourning doves. The Refuge lies within State of Colorado limited quota quality hunting units for deer and elk making this a world class hunting area for those species. Waterfowl hunting is allowed on the Butch Cassidy and Hog Lake wetland units and throughout the Green River corridor. A waterfowl hunting blind for persons with disabilities is available on Hog Lake.

Fishing on the Refuge is primarily for cold-water species as the operation of Flaming Gorge Dam has lowered the temperature of the Green River in this area. Brown trout are relatively common in deep portions of the River where the structure and good current exists. Fishing is allowed along Beaver Creek for brook trout and native Colorado River cutthroat trout. Some questions arise as to whether these two fish populations still exist. A fishing pier for persons with disabilities is available on the Green River near Hog Lake.

Wildlife observation occurs throughout the Refuge and at all seasons of the year. Two campgrounds are currently available to facilitate wildlife watching at dawn and dusk in this remote area. Minimal development of one of the campgrounds is needed to define campsites and parking, replacement of a pit toilet, and to provide safe fire rings. Visitor use does not justify development or operation of both campgrounds. A 10-mile wildlife drive passes through the Refuge on the north side of the River. An overlook has been built off of the wildlife drive above the Spitzie wetland unit. A birdwatching foot trail has been developed along Beaver Creek near Refuge Headquarters. Development of bird, mammal, amphibian, and reptile checklists will facilitate wildlife observation.

Photography is allowed throughout the Refuge, but no special facilities exist. A boardwalk and photo blind could be placed on the Spitzie wetland unit to enhance this use.

Opportunities for environmental education are somewhat limited due to the Refuge's remote location. Special events preplanned with schools have been successful. The Refuge currently holds International Migratory Bird Day and National Wildlife Refuge Week events each year.

Interpretation opportunities are numerous on the Refuge, but they remain undeveloped to date. Interpretation is currently limited to kiosk signs at Headquarters and on the wildlife drive. A brochure describing the area's cultural history, interpretive signs for the birdwatching trail and wildlife drive, and exhibits for the visitor contact area of Headquarters would enhance the Refuge's efforts to explain the Service mission and purposes for which the Refuge was established.

## Refuge Cultural Resources

The Browns Park area is rich in cultural resources. The earliest visible cultural sites belong to the Fremont Indian culture that occupied Browns Park from approximately 300AD. Granaries, or storage buildings that held corn, remain today. This same culture left petroglyphs, rock carvings of strange peoples and animals, on rock slabs on and near the Refuge. Sometime after the Fremonts disappeared, a portion of the Shoshone or Snake Tribe arrived and began spending winters in the relatively mild climate of Browns Park. Tepee rings and other less dramatic evidence remain on the Refuge. During the Shoshone occupation, Euro-American trappers and traders entered the Valley. Three of these traders built a fort they christened Fort Davy Crockett. Sometime after the fur trade dissolved, cattle ranchers entered the Valley and began grazing the surrounding area. Not long after, outlaws, including such notables as Butch Cassidy and the Wild Bunch, set up in the Valley because it offered shelter from the law and for their rustled livestock.

Three National Historic Sites exist on the Refuge. The Lodore School is a schoolhouse that was erected in 1911. The Refuge permits the Browns Hole Homemakers Club to maintain and use the School for community events. The Two Bar Ranch is a late 19th century ranch that was winter headquarters for Ora Haley, a powerful rancher during that time. Fort Davy Crockett is the third Site on the Refuge. A possible fort site was excavated on the Refuge in 1984. While there is little doubt that the Fort existed on the Refuge, the results of the excavation did not conclusively prove the location.

Cultural resources on the Refuge are managed according to a myriad of Federal Acts (Appendix B). The Service's regional archaeologist and the Colorado State Historic Preservation Office are consulted before any ground disturbing activities are undertaken on the Refuge. Cultural resource sites are not currently limiting Refuge management.

## Refuge Land Acquisition

The executive boundary established by Congress encompasses 13,455 acres. Approximately 2,000 acres of inholdings remain to be acquired. Title holders of the remaining tracts include the State of Colorado and Vermillion Land and Livestock. Part of the State's tracts are currently managed by the Colorado Division of Wildlife as a State Wildlife Area. The other parts of the State's tracts are two sections that the Service leases using migratory bird management funds. Acquisition of these remaining lands is a high priority.

The Refuge is interested in pursuing a combination of land transfer and land-use restrictions on adjacent Bureau of Land Management (BLM) lands that would allow for better protection and management of the Refuge.

The construction of a gravel pit just outside the current Refuge boundary made it apparent that the Refuge is vulnerable to development that could impact wildlife and the quality of wildlife-dependent recreational experiences for Refuge visitors. The Refuge is surrounded by Federal land administered by the BLM. The BLM manages for multiple uses, including oil and gas development and mining. Such land uses can be detrimental to wildlife.

A related issue involves hunting, camping, and off-road vehicle use. Regulations over such uses differ markedly between surrounding BLM land and the Refuge. Even though Refuge land is marked every quarter mile along the boundary, confusion still prevails. People enter the Refuge thinking they are still on BLM administered land and often violate Refuge regulations. A land transfer from the BLM that established a Refuge boundary contiguous with State Highway 318 or further north would not only provide additional protection for the Refuge but would also reduce much of the confusion over land management.

## Refuge Fire Management

Vegetation on and near the Refuge is very prone to wildfire. The surrounding area has the highest incidence of wildfire in the contiguous United States. For this reason, the Refuge is a cooperator in an interagency fire suppression agreement that covers northwestern Colorado. A similar agreement with adjacent areas in Utah is expected in the future. Two to three temporary firefighters are hired each summer to staff wildland fire engines based on the Refuge. Housing these firefighters has been a problem. Housing is not available on or off the Refuge. A bunkhouse is badly needed to meet fire suppression obligations.

## Refuge Water Rights

A description of the Refuge's current water rights is included in Appendix C.

## Refuge Goals, Objectives, and Strategies

### Refuge Establishment and Purpose

This section contains the heart of strategies that will define the management direction for the Refuge for the next 15 years (1998-2013). This direction is based on the Refuge System mission, the National Wildlife Refuge System Improvement Act of 1997, the purposes for which the Refuge was established, goals defined for the Upper Colorado River Ecosystem, as well as agency policies and directives. Under the Migratory Bird Conservation Act, the Refuge's purpose is "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." Under the Refuge Recreation Act, the Refuge's purpose is, "suitable for: 1) incidental fish and wildlife-dependent recreational development, 2) the protection of natural resources, and 3) the conservation of endangered species or threatened species. . . ." The goals that follow are based primarily on the management issues discussed earlier and fall into three categories: wildlife, habitats, and people. These strategies may be refined or amended as specific tasks are completed or new research and information come to light.

### Refuge Mission

The Refuge mission is based on the Refuge's purposes and the National Wildlife Refuge System mission which are briefly discussed in the Introduction/Background.

Refuge Mission: Conserve, manage, and restore a diversity of wildlife and a diversity of habitats important to migratory birds and other species, while providing compatible wildlife-dependent recreation.

The essence of the Refuge's mission is that the emphasis will be on wildlife, habitats, and people (wildlife-dependent recreation).

### Refuge Goals

The following goals are derived from the Refuge mission and information found in previous sections of this Plan.

#### Wildlife

P Conserve wildlife within the Refuge and the surrounding ecosystem.

#### Habitat

P Manage Refuge wetlands to meet the migratory and/or breeding requirements of American bittern, northern harrier, white-faced ibis, waterfowl, shorebirds, and other waterbirds.

P Manage Refuge riparian habitat to meet the migratory and/or breeding requirements of birds dependent on the Green River corridor.

P Manage Refuge grasslands to meet the breeding requirements of migratory birds and the wintering requirements of mule deer and elk.

P Manage Refuge semidesert shrublands to meet the breeding requirements of loggerhead shrike, Brewer's sparrow, other migratory birds, and sage grouse and the wintering requirements of mule deer, pronghorn, and elk.

P Manage Refuge pinyon-juniper habitat to meet the breeding requirements of migratory birds.

#### People

P Provide opportunities for wildlife dependent recreation that are compatible with the Refuge's purposes for the benefit of all people.

## Refuge Objectives and Strategies

An objective is one way to accomplish a specific goal. Objectives describe who, what, when, where, and why. The who in all cases is the Refuge. The when follows each objective. Strategies listed under each objective describe how it will be accomplished. Goals, objectives, and strategies for this Draft Plan follow.

### Wildlife

The Refuge staff does very little to directly manage populations of resident wildlife on the Refuge. This is the province of the Colorado Division of Wildlife that primarily manages game species through hunting and trapping. Refuge problems with too many or too few game animals are resolved through consultation with the Division. Refuge wildlife management is more passive, habitat oriented, and focused on protections from harmful activities. The Refuge does have the authority to close or restrict hunting, trapping, fishing, or public access to specific areas within the boundary. Because wildlife (especially migratory birds) are so wide ranging, conservation becomes challenging and requires coordination with many agencies, organizations, and individuals.

**Goal:** Conserve wildlife within the refuge and the surrounding ecosystem.

**Objective:** The Refuge staff will support wildlife conservation programs within the Green River Basin in Colorado to provide for the greater habitat needs of Refuge wildlife and to benefit wildlife in the surrounding ecosystem. Year: 1- 15

#### **Strategies:**

P Represent the Service and the Refuge on the North-western Colorado Coordinated Resource Management steering committee.

P Continue to provide technical expertise to agencies, organizations, and individuals for the benefit of wildlife conservation within the Green River Basin in Colorado.

**Objective:** Reduce threats to Refuge wildlife from detrimental land uses that could occur adjacent to the Refuge boundary. Year 1-5

#### **Strategy:**

P The Refuge staff will pursue a combination of land transfer and land-use restrictions on BLM administered lands between the Refuge boundary and West Cold Springs Wilderness Study Area.

## Habitat

Browns Park NWR provides habitat for 300 species of wildlife. Habitat management that favors some species will not favor others. Priorities need to be set to insure optimum habitat for the most important species. The Refuge was established under the Migratory Bird Treaty Act and the Refuge Recreation Act as discussed in the Refuge Establishment and Purpose section. These Acts list migratory birds and endangered and threatened species as high priorities. Habitat needs of the three federally listed species known to occur on the Refuge (peregrine falcon, bald eagle, and Ute's ladies-tresses) can be met with little active management. The Refuge provides habitat for over 200 species of migratory birds. Among the migratory birds, several were identified earlier as Special Status species. Besides migratory birds, the Refuge provides important habitat for resident wildlife species such as mule deer, elk, pronghorn, and sage grouse (nonmigratory bird). Habitat management on the Refuge will focus on providing habitat for migratory birds (including Special Status species), and resident wildlife that the Refuge is important to.

Good habitat is the key to wildlife conservation. Habitat management is the most important activity on the Refuge. Separate goals have been developed for each habitat type identified in the Resource Description Section of this Plan.

## Wetlands

**Goal:** Manage Refuge wetlands to meet the migratory and/or breeding requirements of American bittern, northern harrier, white-faced ibis, waterfowl, shorebirds, and other water birds.

**Objective:** The Refuge staff will manage for contiguous blocks of tall emergent vegetation no smaller than five acres on the Butch Cassidy, Hog Lake, and Flynn wetland units to meet the breeding requirements of American bittern. Years 1-15

### **Strategies:**

P Protect contiguous blocks of hardstem bulrush during periodic emergent plant control in these units. Limit drawdown to only one of these three units during the breeding season.

P Conduct annual spring call surveys of bittern to monitor response to management. Such management will also benefit sora and Virginia rail. Portions of these wetlands will be managed for waterfowl and other waterbirds.

**Objective:** The Refuge staff will manage for contiguous blocks of wet meadow habitat no smaller than five acres in the Ryegrass and Beaver Creek areas, and the Butch Cassidy, Hog Lake, Flynn, Spitzie, Warren, Nelson, and Hoy wetland units to meet the breeding requirements of northern harrier. Years 1-15

### **Strategy:**

P In the spring, flood wet meadows in Ryegrass and Beaver Creek, and allow water to seep out of the seven wetland units to maintain the tall grass necessary for harrier nesting and foraging. Leave small hummocks within thick, tall grass dry for nest sites. This will also provide forage areas for white-faced ibis, waterfowl, and some shorebirds.

**Objective:** The Refuge staff will manage for large areas of open, shallow water not exceeding a mean depth of four inches during spring and/or fall migration in the Nelson, Warren, and Hoy wetland units to meet the migratory requirements of white-faced ibis, dabbling waterfowl, shorebirds, and other waterbirds. Years 1-15

### **Strategies:**

P Manage Nelson and Warren wetland units as seasonal wetlands using moist soil management techniques. Time annual soil exposure to coincide with the start of the growing season for hardstem bulrush (approximately June 1).

P Periodically drawdown, burn, and disk these wetland basins to maintain an emergent canopy coverage of less than 30 percent.

P Establish transects to measure encroachment of bulrush and growth of forage vegetation.

P This water regime should control emergent vegetation in Warren and Nelson wetland units. Water management determines in a large part what foods are available for migrating waterbirds, and the depth, duration, and timing of the wet period are all important. Periodic drawdowns accelerate decomposition and are important for nutrient cycling. Flooding a marsh after it has been drawn-down for a growing season makes a large amount of invertebrate and plant food available to birds. Flooding a marsh seasonally, such that it is only wet during a short period in the spring and fall, can influence the type and coverage of wetland plants found there. Hardstem bulrush requires persistent water to increase its coverage. Discing marsh soils to a depth that removes the bulrush rhizomes is sometimes necessary to control bulrush encroachment.

**Objective:** The Refuge staff will reduce predation of upland nesting waterfowl in the Hoy wetland Unit to improve production and survival of young. Year 2

### **Strategies:**

P Drawdown the wetland over the winter of 1999-2000. Burn residual emergent vegetation in the spring of 2000 and flatten the existing nesting islets to the surrounding grade to eliminate a known nesting sink.

P Manage surrounding habitat to encourage dispersed nesting to minimize predation.

**Objective:** The Refuge will restore riparian habitat in the Horseshoe and Grimes wetland units to improve wildlife habitat. Year 3-5

### **Strategies:**

P Remove water control structures and level dikes.

P Remove tamarisk trees.

P Drill native grass seed and out-plant native shrub and tree species.

P Control pest plants that establish on disturbed soils.

P Reevaluate water rights currently used to support these units.

## Riparian

**Goal:** Manage Refuge riparian habitat to meet the migratory and breeding requirements of birds dependent on the Green River corridor and to maintain populations of Ute ladies-tresses orchid.

**Objective:** The Refuge staff will treat, restore, and protect a minimum of 100 acres of riparian habitat per year for the benefit of migratory birds. Year 1-15

### **Strategies:**

P Participate in Service negotiations with Bureau of Reclamation for restoration of spring flooding events on the Green River below Flaming Gorge Dam.

P Support research on riparian habitats on the Refuge.

P Collect, propagate, out-plant, and protect native genotypes of dominant riparian tree, shrub, and grass species (including Fremont's cottonwood, silver buffaloberry, inland saltgrass, alkali sacaton, Great Basin wildrye, western wheatgrass, Indian ricegrass).

P Treat areas infested with nonnative plants using the most efficient integrated pest management techniques (such as chemical, mechanical, and biological controls). Monitor habitat responses to these treatments using vegetation transects and mapping.

P Protect cottonwood trees used by bald eagles as hunting perches from fire and beaver damage, especially those adjacent to the River.

**Objective:** Maintain populations of Ute ladies-tresses occurring on Refuge lands.

### **Strategy:**

P Monitor existing colonies of Ute ladies-tresses orchid on the Refuge. Identify essential habitat and protect from disturbance.

## Grasslands

**Goal:** Manage Refuge grasslands to meet the breeding requirements of migratory birds and the wintering requirements of mule deer and elk.

**Objective:** The Refuge staff will provide a diversity of grassland habitats in the Beaver Creek and Ryegrass areas and along the Green River to meet the breeding requirements of grassland obligate species such as savannah sparrow and provide winter forage for mule deer and elk. Year 1-15

### **Strategies:**

P Use fire to keep grasslands vigorous. Interseed native grass species in smooth brome dominated areas.

P Treat areas infested with nonnative plants using the most efficient integrated pest management techniques (such as chemical, mechanical or biological control).

P Monitor habitat responses to treatments using vegetation transects and mapping.



## Semidesert Shrublands

**Goal:** Manage Refuge semidesert shrublands to meet the breeding requirements of loggerhead shrike, Brewer's sparrow, other migratory birds, and sage grouse, and the wintering requirements of mule deer, pronghorn, and elk.

**Objective:** The Refuge staff will provide breeding habitat for loggerhead shrike including isolated clumps of mature greasewood (nesting cover) in close proximity to powerlines (perching), barbed wire fencing (food caching), and bare ground areas including roadways (foraging) with emphasis on those sites currently used by nesting shrikes. Year 1-15

### **Strategies:**

P Cooperate with State and County governments to protect habitat in rights-of-way meeting the criteria described above. This management primarily involves lands outside the Refuge boundary.

P Conduct annual nest monitoring of appropriate sites on and adjacent to the Refuge.

**Objective:** The Refuge staff will manage for contiguous blocks of semidesert shrubland of no less than five acres, composed of shrubs from 3 feet to 5 feet tall, to meet the breeding requirements of Brewer's sparrow with emphasis on areas currently used by nesting sparrows. Year 1-15

### **Strategies:**

P Survey for Brewer's sparrow during June in appropriate habitat to determine areas with the greatest density of singing males.

P Protect these areas from management actions that would reduce shrub structure needed for nesting (i.e., fire).

**Objective:** In areas not being managed for loggerhead shrike or Brewer's sparrow, the Refuge staff will provide a diversity of semidesert shrubland micro-habitats to meet the breeding requirements of sage grouse, sage sparrow, sage thrasher, and to provide winter habitat for mule deer and pronghorn. Year 1-15

### **Strategies:**

P Open up areas dominated by greasewood that have Great Basin wildrye in close proximity with controlled burning. Protect stands of Wyoming big sagebrush from fire.

P In known sage grouse breeding areas, keep lek sites free of woody vegetation. Although they are not a migratory bird, sage grouse are declining throughout their range and are worthy of special emphasis. Sage sparrow and sage thrasher are also dependent on mature sagebrush stands. Mule deer and pronghorn are managed by the Colorado Division of Wildlife (CDOW) ; however, the Refuge provides critical winter range for them.

P Survey the Browns Park area for sage grouse leks annually.

P Monitor treatment sites for vegetative and wildlife response.

## Pinyon-Juniper Woodlands

**Goal:** Maintain Refuge pinyon-juniper woodlands to provide habitat for breeding neotropical migratory birds, resident perching birds, and raptors.

**Objective:** The Refuge staff will protect the limited amount of pinyon-juniper habitat within the boundary from disturbance. Year 1-15

### **Strategy:**

P Suppress wildfires burning in or threatening this habitat when suppression actions would not be unduly hazardous.

## People

Managing people on national wildlife refuges involves delicate balance. At what point does wildlife-dependent recreation compromise the very resources the Refuge was designed to protect? It is hard to say. In most cases, the best strategy is to provide recreation opportunities, monitor the resulting impacts to wildlife where possible, and to err on the side of wildlife protection. Allowing people to recreate on the Refuge benefits wildlife indirectly. Visitors will learn about the needs of wildlife they come to see and will appreciate and support the mission and goals of Browns Park NWR and the Service.

**Goal:** Provide opportunities for wildlife dependent recreation that are compatible with Refuge purposes for the benefit of all people.

**Objective:** The Refuge staff will provide quality hunting and fishing opportunities that will not adversely affect local or regional populations of game species. Year 1-15

### **Strategies:**

P Allow limited hunting of mule deer, elk, cottontail rabbit, and mourning dove. Vehicle access will be minimized to improve hunt quality and avoid disturbance to wildlife.

P Allow waterfowl and coot hunting on no more than two marshes and the Green River corridor during any one season.

P Allow fishing along Beaver Creek and the Green River corridor. Refuge wetlands and Vermillion Creek do not support populations of sport fish.

**Objective:** The Refuge staff will provide quality, accessible opportunities for wildlife observation, photography, environmental education, and interpretation for the benefit of all people. Year 1-15

### **Strategies:**

P Maintain an overlook above Spitzie marsh.

P Maintain a birdwatcher's trail along Beaver Creek.

P Fully develop the Crook campground to facilitate wildlife observation during dawn and dusk in this remote area. Completion date: 1999-2000

P Develop a bird checklist. Completion date: 2000-2001

P Develop a mammal, reptile, and amphibian checklist. Completion date: 2000-2001

P Develop and place kiosks at the eastern and western ends of the Refuge along Colorado Highway 318. Completion date: 1999-2000

P Develop a fully accessible boardwalk and photo blind on Spitzie marsh. Completion date: 2003

P Develop a brochure that interprets the cultural history of Browns Park. Completion date: 2003

P Develop interpretive signs and displays for the birdwatcher's trail, wildlife drive, and visitor contact area of Refuge Headquarters. Completion date: 1999-2001

P Upgrade basic visitor facilities to accommodate persons with disabilities or provide comparable experiences for disabled visitors. Completion date: 1999-2013

P Conduct International Migratory Bird Day and National Wildlife Refuge Week events on the Refuge annually.



## Plan Implementation

This section briefly outlines what will be required in additional funding and personnel to implement this Plan.

### Funding and Personnel Requirements

These are the estimated costs to implement the major elements of the CCP. See Appendix G for descriptions.

<u>Project</u>	<u>Projected Cost</u>
Construct bunkhouse to meet wildfire suppression obligations .....	\$155,000
Finish development of Crook Campground .....	\$95,000
Develop interpretive signs, exhibits and brochures .....	\$55,000
Develop wildlife checklists and construct two kiosks .....	\$44,000
Reduce pest plants .....	\$25,000
Apply habitat treatments and monitor (see personnel needed below) .....	\$206,000
Complete accessibility modifications and developments .....	\$20,000
Restore Horseshoe and Grimes Units .....	\$75,000
Remove islets in Hoy Unit .....	\$30,000
Construct boardwalk and observation blind in Spitzie Unit .....	\$50,000
Construct outlets for the Flynn and Hog Lake Units .....	\$50,000

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### Permanent Personnel Needed to Implement the Plan

Funding for two additional permanent employees is needed to implement this Plan.

<u>Current Personnel</u>	<u>Personnel Needed</u>
Refuge Manager, GS-12 .....	Refuge Manager, GS-12
Refuge Operations Specialist, GS-09 .....	Refuge Operations Specialist, GS-11
Engineering Equipment Operator, WG-10 .....	Engineering Equipment Operator, WG-10
Maintenance Worker, WG-8 .....	Biological Technician, GS-6
(Vacant) .....	Administrative Support Assistant, GS-5
Position nonexistent .....	Wildlife Biologist, GS-9

## Partnership Opportunities

Potential partners that could assist the Refuge with implementation of the Plan are as follows:

**Grand Valley Audubon Society:** The Society may be interested in “adopting” the Refuge by volunteering to help with the workload associated with the Plan. Adopt-A-Refuge is a National Audubon initiative.

**Colorado Division of Wildlife:** The Refuge staff will work with the Division to manage the populations of game species on the Refuge.

**Moffat County:** The Refuge staff will coordinate nonnative plant control with Moffat County Weed and Pest.

**Craig Area Chamber of Commerce:** The Refuge staff will cooperate with the Chamber to dispense information to hunters and other Refuge visitors.

**Dinosaur National Monument:** The Refuge will share staff, equipment, and professional expertise with the Monument.

**Bureau of Land Management:** The Refuge will share staff, equipment, and professional expertise with the John Jarvie National Historic Site and the Little Snake Resource Area.

**Craig Interagency Dispatch Center:** The Refuge staff will cooperate with Craig Dispatch for wildfire suppression within the ecosystem.

**Northwest Colorado Coordinated Resource Management:** The Refuge staff will maintain involvement for the betterment of natural resource conservation within the surrounding ecosystem.

**Dinosaur Nature Association:** The Refuge staff will seek support from this existing cooperating association.

**Browns Park State Waterfowl Refuge:** The Refuge staff will cooperate with the State for wildlife conservation in Browns Park.

**Browns Hole Homemakers Club:** The Refuge will permit the Browns Hole Homemakers Club to manage and maintain the Lodore School National Historic Site.

**Browns Park Sportsmen’s Club:** The Refuge staff will request the assistance of the Sportsmen’s Club for selected wildlife projects.

## Monitoring and Evaluation

This section describes how the implementation of the Plan will be monitored and evaluated from 1999 until 2008: Accomplishment of objectives in the Plan will be monitored annually by the Refuge Manager’s supervisor. Successful performance will be tied to the accomplishment of objectives that are scheduled for that year. Such monitoring is critical to implementation of the Plan.

It is reasonable to believe that substantial changes could occur within the Service during the next 15 years. The objectives of the Plan will be examined a minimum of every five years to determine if they are still valid and to allow the addition or deletion of objectives.



## Appendix A

### Wildlife Species of Browns Park NWR

#### Birds

##### **Loons**

Common Loon *Gavia immer*

##### **Grebes**

Pied-billed Grebe *Podilymbus podiceps*

Horned Grebe *Podiceps auritus*

Eared Grebe *Podiceps nigricollis*

Western Grebe *Aechmophorus occidentalis*

Clark's Grebe *Aechmophorus clarkii*

##### **Pelicans**

American White Pelican *Pelecanus erythrorhynchos*

##### **Cormorant**

Double-crested Cormorant *Phalacrocorax auritus*

##### **Bitterns, Herons**

American Bittern *Botaurus lentiginosus*

Great Blue Heron *Ardea herodias*

Snowy Egret *Egretta thula*

Cattle Egret *Bubulcus ibis*

Green Heron *Butorides virescens*

Black-crowned Night-Heron *Nycticorax nycticorax*

##### **Ibis, Stork**

White-faced Ibis *Plegadis chihi*

##### **Vultures**

Turkey Vulture *Cathartes aura*

##### **Geese**

Snow Goose *Chen caerulescens*

Canada Goose *Branta canadensis*

##### **Swans**

Trumpeter Swan *Cygnus buccinator*

Tundra Swan *Cygnus columbianus*

##### **Ducks**

Wood Duck *Aix sponsa*

Gadwall *Anas strepera*

American Wigeon *Anas americana*

Mallard *Anas platyrhynchos*

Blue-winged Teal *Anas discors*

Cinnamon Teal *Anas cyanoptera*

Northern Shoveler *Anas clypeata*

Northern Pintail *Anas acuta*

Green-winged Teal *Anas crecca*

Canvasback *Aythya valisineria*

Redhead *Aythya americana*

Ring-necked Duck *Aythya collaris*

Lesser Scaup *Aythya affinis*

Bufflehead *Bucephala albeola*

Common Goldeneye *Bucephala clangula*

Barrow's Goldeneye *Bucephala islandica*

Hooded Merganser *Lophodytes cucullatus*

Common Merganser *Mergus merganser*

Red-breasted Merganser *Mergus serrator*

Ruddy Duck *Oxyura jamaicensis*

##### **Hawks, Kites, Eagles**

Osprey *Pandion haliaetus*

Bald Eagle *Haliaeetus leucocephalus*

Northern Harrier *Circus cyaneus*

Sharp-shinned Hawk *Accipiter striatus*

Cooper's Hawk *Accipiter cooperii*

Northern Goshawk *Accipiter gentilis*

Swainson's Hawk *Buteo swainsoni*

Red-tailed Hawk *Buteo jamaicensis*

Ferruginous Hawk *Buteo regalis*

Rough-legged Hawk *Buteo lagopus*

Golden Eagle *Aquila chrysaetos*

##### **Falcons**

American Kestrel *Falco sparverius*

Merlin *Falco columbarius*

Peregrine Falcon *Falco peregrinus*

Prairie Falcon *Falco mexicanus*

##### **Gallinaceous Birds**

Chukar (Introduced) *Alectoris chukar*

Sage Grouse *Centrocercus urophasianus*

##### **Rails, Gallinules**

Virginia Rail *Rallus limicola*

Sora *Porzana carolina*

American Coot *Fulica americana*

##### **Cranes**

Sandhill Crane *Grus canadensis*

**Plovers**

Black-bellied Plover	<i>Pluvialis squatarola</i>
Semipalmated Plover	<i>Charadrius semipalmatus</i>
Killdeer	<i>Charadrius vociferus</i>
Mountain Plover	<i>Charadrius montanus</i>

**Stilt, Avocet**

Black-necked Stilt	<i>Himantopus mexicanus</i>
American Avocet	<i>Recurvirostra americana</i>

**Sandpipers**

Greater Yellowlegs	<i>Tringa melanoleuca</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Solitary Sandpiper	<i>Tringa solitaria</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Long-billed Curlew	<i>Numenius americanus</i>
Marbled Godwit	<i>Limosa fedoa</i>
Western Sandpiper	<i>Calidris mauri</i>
Least Sandpiper	<i>Calidris minutilla</i>
Baird's Sandpiper	<i>Calidris bairdii</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Common Snipe	<i>Gallinago gallinago</i>

**Phalaropes**

Wilson's Phalarope	<i>Phalaropus tricolor</i>
Red-necked Phalarope	<i>Phalaropus lobatus</i>

**Gulls**

Franklin's Gull	<i>Larus pipixcan</i>
Bonaparte's Gull	<i>Larus philadelphia</i>
Ring-billed Gull	<i>Larus delawarensis</i>
California Gull	<i>Larus californicus</i>

**Terns**

Forster's Tern	<i>Sterna forsteri</i>
Black Tern	<i>Chlidonias niger</i>

**Pigeons, Doves, Parakeet**

Rock Dove	(Introduced)	<i>Columba livia</i>
Mourning Dove		<i>Zenaida macroura</i>

**Cuckoos**

Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
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**Owls**

Barn Owl	<i>Tyto alba</i>
Western Screech-Owl	<i>Otis kennicottii</i>
Great Horned Owl	<i>Bubo virginianus</i>
Burrowing Owl	<i>Athene cunicularia</i>
Long-eared Owl	<i>Asio otus</i>
Short-eared Owl	<i>Asio flammeus</i>
Northern Saw-whet Owl	<i>Aegolius acadicus</i>

**Goatsuckers**

Common Nighthawk	<i>Chordeiles minor</i>
Common Poorwill	<i>Phalaenoptilus nuttallii</i>

**Swifts**

White-throated Swift	<i>Aeronautes saxatalis</i>
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**Hummingbirds**

Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Calliope Hummingbird	<i>Stellula calliope</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>

**Kingfisher**

Belted Kingfisher	<i>Ceryle alcyon</i>
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**Woodpeckers**

Lewis' Woodpecker	<i>Melanerpes lewis</i>
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>

**Flycatchers**

Olive-sided Flycatcher	<i>Contopus cooperi</i>
Western Wood-Pewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Least Flycatcher	<i>Empidonax minimus</i>
Hammond's Flycatcher	<i>Empidonax hammondi</i>
Gray Flycatcher	<i>Empidonax wrightii</i>
Dusky Flycatcher	<i>Empidonax oberholseri</i>
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>
Say's Phoebe	<i>Sayornis saya</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>

**Shrikes**

Loggerhead Shrike	<i>Lanius ludovicianus</i>
Northern Shrike	<i>Lanius excubitor</i>

**Vireo**

Gray Vireo	<i>Vireo vicinior</i>
Blue-headed Vireo	<i>Vireo solitarius</i>
Warbling Vireo	<i>Vireo gilvus</i>

**Jays, Magpies, Crows, Ravens**

Western Scrub-Jay	<i>Aphelocoma californica</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>
Black-billed Magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>

**Lark**

Horned Lark	<i>Eremophila alpestris</i>
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**Swallows**

Tree Swallow	<i>Tachycineta bicolor</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Bank Swallow	<i>Riparia riparia</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>

**Chickadees, Titmice, Verdin, Bushtit**

Black-capped Chickadee	<i>Poecile atricapillus</i>
Mountain Chickadee	<i>Poecile gambeli</i>
Juniper Titmouse	<i>Baeolophus griseus</i>
Bushtit	<i>Psaltriparus minimus</i>

**Nuthatches**

Red-breasted Nuthatch	<i>Sitta canadensis</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>

**Creepers**

Brown Creeper	<i>Certhia americana</i>
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**Wrens, Dipper**

Rock Wren	<i>Salpinctes obsoletus</i>
Canyon Wren	<i>Catherpes mexicanus</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
House Wren	<i>Troglodytes aedon</i>
Marsh Wren	<i>Cistothorus palustris</i>
American Dipper	<i>Cinclus mexicanus</i>

**Kinglets**

Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>

**Gnatcatchers**

Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>
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**Thrushes, Bluebirds**

Western Bluebird	<i>Sialia mexicana</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Hermit Thrush	<i>Catharus guttatus</i>
American Robin	<i>Turdus migratorius</i>

**Thrashers**

Gray Catbird	<i>Dumetella carolinensis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Sage Thrasher	<i>Oreoscoptes montanus</i>
Brown Thrasher	<i>Toxostoma rufum</i>

**Starling**

European Starling	<i>Sturnus vulgaris</i>
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**Pipits**

American (Water) Pipit	<i>Anthus rubescens</i>
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**Waxwings**

Bohemian Waxwing	<i>Bombycilla garrulus</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>

**Warblers**

Orange-crowned Warbler	<i>Vermivora celata</i>
Virginia's Warbler	<i>Vermivora virginiae</i>
Yellow Warbler	<i>Dendroica petechia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
Townsend's Warbler	<i>Dendroica townsendi</i>
American Redstart	<i>Setophaga ruticilla</i>
Northern Waterthrush	<i>Seiurus noveboracensis</i>
MacGillivray's Warbler	<i>Oporornis tolmiei</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Yellow-breasted Chat	<i>Icteria virens</i>

**Tanagers**

Western Tanager	<i>Piranga ludoviciana</i>
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**Towhee, Sparrows**

Green-tailed Towhee	<i>Pipilo chlorurus</i>
Spotted Towhee	<i>Pipilo maculatus</i>
American Tree Sparrow	<i>Spizella arborea</i>
Chipping Sparrow	<i>Spizella passerina</i>
Brewer's Sparrow	<i>Spizella breweri</i>
Vesper Sparrow	<i>Poocetes gramineus</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Black-throated Sparrow	<i>Amphispiza bilineata</i>
Sage Sparrow	<i>Amphispiza belli</i>
Lark Bunting	<i>Calamospiza melanocorys</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Melospiza melodia</i>
Lincoln's Sparrow	<i>Melospiza lincolni</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
Harris' Sparrow	<i>Zonotrichia querula</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Lapland Longspur	<i>Calcarius lapponicus</i>

**Grosbeaks, Buntings**

Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Blue Grosbeak	<i>Guiraca caerulea</i>
Lazuli Bunting	<i>Passerina amoena</i>

**Blackbirds, Orioles**

Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
Common Grackle	<i>Quiscalus quiscula</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Baltimore Oriole	<i>Icterus galbula</i>
Bullock's Oriole	<i>Icterus bullockii</i>
Scott's Oriole	<i>Icterus parisorum</i>

**Finches**

Brown-capped Rosy-Finch	<i>Leucosticte australis</i>
Cassin's Finch	<i>Carpodacus cassinii</i>
House Finch	<i>Carpodacus mexicanus</i>
Red Crossbill	<i>Loxia curvirostra</i>
Common Redpoll	<i>Carduelis flammea</i>
Pine Siskin	<i>Carduelis pinus</i>
Lesser Goldfinch	<i>Carduelis psaltria</i>
American Goldfinch	<i>Carduelis tristis</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>

## Mammals

Merriam's Shrew	<i>Sorex merriami</i>
Montane Shrew	<i>Sorex monticolus</i>
California Myotis	<i>Myotis californicus</i>
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>
Long-eared Myotis	<i>Myotis evotis</i>
Little brown Myotis	<i>Myotis lucifugus</i>
Fringed Myotis	<i>Myotis thysanodes</i>
Long-legged Myotis	<i>Myotis volans</i>
Yuma Myotis	<i>Myotis yumanensis</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Western Pipistrelle	<i>Pipistrellus hesperus</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Spotted Bat	<i>Euderma maculatum</i>
Townsend's Big-eared Bat	<i>Plecotus townsendii</i>
Pallid Bat	<i>Antrozous pallidus</i>
Desert Cottontail	<i>Sylvilagus audubonii</i>
Mountain Cottontail	<i>Sylvilagus nuttallii</i>
Black-tailed Jackrabbit	<i>Lepus californicus</i>
White-tailed Jackrabbit	<i>Lepus townsendii</i>
Cliff Chipmunk	<i>Tamias dorsalis</i>
Least Chipmunk	<i>Tamias minimus</i>
Hopi Chipmunk	<i>Tamias rufus</i>
Yellow-bellied Marmot	<i>Marmota flaviventris</i>
Wyoming Ground Squirrel	<i>Spermophilus elegans</i>
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>
Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>
White-tailed Prairie Dog	<i>Cynomys leucurus</i>
Northern Pocket Gopher	<i>Thomomys talpoides</i>
Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>
Great basin Pocket Mouse	<i>Perognathus parvus</i>
Ord's Kangaroo Rat	<i>Dipodimys ordii</i>
American Beaver	<i>Castor canadensis</i>
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>
Canyon Mouse	<i>Peromyscus crinitus</i>
Deer Mouse	<i>Peromyscus maniculatis</i>
Pinyon Mouse	<i>Peromyscus truei</i>
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>
Long-tailed Vole	<i>Microtus longicaudus</i>
Montane Vole	<i>Microtus montanus</i>
Sagebrush Vole	<i>Lemmiscus curtatus</i>
Common Muskrat	<i>Ondatra zibethicus</i>
Common Porcupine	<i>Erethizon dorsatum</i>
Coyote	<i>Canis latrans</i>
Gray Wolf	<i>Canis lupus</i>
Red Fox	<i>Vulpes vulpes</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>
Black Bear	<i>Ursus americanus</i>
Grizzly Bear	<i>Ursus arctos</i>
Ringtail	<i>Bassariscus astutus</i>
Raccoon	<i>Procyon lotor</i>
Long-tailed Weasel	<i>Mustela frenata</i>
Black-footed Ferret	<i>Mustela nigripes</i>
Mink	<i>Mustela vison</i>
American Badger	<i>Taxidea taxus</i>
Western Spotted Skunk	<i>Spilogale gracilis</i>
Striped Skunk	<i>Mephitis mephitis</i>
Northern River Otter	<i>Lutra canadensis</i>
Mountain Lion	<i>Felis concolor</i>
Bobcat	<i>Lynx rufus</i>
American Elk	<i>Cervus elaphus</i>

Mule Deer	<i>Odocoileus hemionus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Moose	<i>Alces alces</i>
Pronghorn	<i>Antilocapra americana</i>
Bison	<i>Bison bison</i>
Bighorn Sheep	<i>Ovis canadensis</i>

## Reptiles

Short-horned Lizard	<i>Phrynosoma douglassii</i>
Sagebrush Lizard	<i>Sceloporous graciosus</i>
Eastern Fence Lizard	<i>Sceloporous undulatus</i>
Tree Lizard	<i>Urosaurus ornatus</i>
Side-blotched Lizard	<i>Uta stansburiana</i>
Western Whiptail	<i>Cnemidophorus tigris</i>
Racer	<i>Coluber constrictor</i>
Striped Whipsnake	<i>Masticophis taeniatus</i>
Great Basin Gopher Snake	<i>Pituophis melanoleucus</i>
Western Terrestrial Garter Snake	<i>Thamnophis elegans</i>
Western Rattlesnake	<i>Crotalus viridis</i>

## Amphibians

Tiger Salamander	<i>Ambystoma tigrinum</i>
Great Basin Spadefoot	<i>Scaphiopus intermontanus</i>
Woodhouse's Toad	<i>Bufo woodhousii</i>
Northern Leopard Frog	<i>Rana pipiens</i>

## Appendix B

### Key Legal and Policy Guidance

**Antiquities Act (1906):** Authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

**Migratory Bird Treaty Act (1918):** Designates the protection of migratory birds as a Federal responsibility. This Act enables the setting of seasons, and other regulations including the closing of areas, Federal or non-Federal, to the hunting of migratory birds.

**Migratory Bird Conservation Act (1929):** Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

**Migratory Bird Hunting and Conservation Stamp Act (1934):** Authorized the opening of part of a refuge to waterfowl hunting.

**Fish and Wildlife Act (1956):** Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

**Fish and Wildlife Coordination Act (1958):** Allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

**Refuge Recreation Act (1962):** Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

**Land and Water Conservation Fund Act (1965):** Uses the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

**National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. (Refuge Administration Act):** Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

**National Historic Preservation Act (1966) as amended:** Establishes as policy that the Federal Government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

**Architectural Barriers Act (1968):** Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

**National Environmental Policy Act (1969):** Requires the disclosure of the environmental impacts of any major Federal action significantly affecting the quality of the human environment.

**Endangered Species Act (1973):** Requires all Federal agencies to carry out programs for the conservation of endangered and threatened species.

**Rehabilitation Act (1973):** Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal government to ensure that anybody can participate in any program.

**Archaeological and Historic Preservation Act (1974):** Directs the preservation of historic and archaeological data in Federal construction projects.

**Clean Water Act (1977):** Requires consultation with the Corps of Engineers (404 permits) for major wetland modifications.

**Executive Order 11988 (1977):** Each Federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

**American Indian Religious Freedom Act (1978):** Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

**Archaeological Resources Protection Act (1979) as amended:** Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

**Emergency Wetlands Resources Act (1986):** The purpose of the Act is "To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes."

**Federal Noxious Weed Act (1990):** Requires the use of integrated management systems to control or contain undesirable plant species; and an interdisciplinary approach with the cooperation of other Federal and State agencies.

**Native American Graves Protection and Repatriation Act (1990):** Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

**Americans With Disabilities Act (1992):** Prohibits discrimination in public accommodations and services.

**Executive Order 12996 Management and General Public Use of the National Wildlife Refuge System (1996):** Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the System.

**Executive Order 13007 Indian Sacred Sites (1996):** Directs Federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

## Appendix C

### Water Rights

Colorado water law recognizes the doctrine of prior appropriation based on first-in-time, first-in-right. The special water courts issues decrees, establish conditions and limitation on use and resolve disputes. A Conditional water right covers use until such time as proof of beneficial use has been submitted and the right is decreed as Absolute.

The State Engineer administers surface and groundwater diversions, through division superintendents, under court decrees.

Water rights may be sold; however, any change in use, point of diversion, season-of-use, or quantity requires court approval and a new decree, which must satisfy all objectors who may be injured by the change. Changes are generally limited to the historic consumptive use, not the total amount diverted.

The Browns Park NWR holds numerous Absolute water rights on ditches from Beaver Creek, Carma Spring, the Green River and Vermillion Creek as listed below.

The Service also entered into a Memorandum of Understanding dated May 24, 1990, with the Colorado Division of Wildlife (CDOW) in which CDOW is guaranteed use of 12 cfs of the decreed Beaver Creek ditches as noted below by an asterisk (\*). The intent of the MOU was to guarantee a minimum flow in Beaver Creek by alternating water diversions between the two agencies.

Ditch	Rate cfs		Ditch	Rate cfs
<u>Beaver Creek</u>			<u>Green River</u>	
Apple	3.0	*	Allen	2.6
Beaver	2.0		Allen Enl. #1	3.4
Beaver Enl. #	15.0		Carr	5.0
Dejournette #1	1.0		Flynn Bottom	12.0
Dejournette #1			Flynn Bottom	8.0
Enl.	3.0		Grimes	15.0
Goodman	5.0	*	Hog Lake	9.0
Jarvie	2.0		Horseshoe	9.0
Jarvie Enl. #1	13.0		Horseshoe Enl. #1	1.0
McKnight #1	5.0		Hoy	10.0
McKnight #2	3.0		L. Watson	12.0
Pie	3.0		Leonard	7.66
Thomas Doudle #1	1.66	*	Nelson	9.0
Thomas Doudle #1			Nelson Enl. #1	1.0
Enl.	4.34	*	Spitzie	9.0
Thomas Doudle #2	3.0	*	Spitzie Enl. #1	3.0
Walker	3.0		Warren	9.0
			Warren Enl. #1	1.0
<u>Carma Spring</u>				
Carma	.25	*		
<u>Vermillion Creek</u>				
Lodore	20.00			



## Appendix D

### Environmental Assessment

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## I. Purpose and Need for Action

The purpose of this Environmental Assessment is to publicly disclose the possible environmental consequences that implementation of the Browns Park CCP could have on the quality of the physical, biological, and human environment, as required by the National Environmental Policy Act of 1969. Refer to the Introduction/Background section of the CCP for a description of need for a plan. Preparation of Comprehensive Conservation Plans is authorized under the National Wildlife Refuge System Administration Act of 1966 as amended.

## II. Description of Alternatives

### Alternative 1 - No Action

Under the "No Action" alternative, the Service would continue current Refuge management and not implement the Browns Park CCP.

P The current level of operational funding and staffing would continue.

P Refuge visitor facilities would receive minor repairs or improvements. No major projects would be proposed. Recreational opportunities would not be expanded.

P The condition of Refuge wildlife habitats would not change significantly. No new habitat restoration plans or activities would be initiated.

P Refuge cultural resource sites would continue to receive their current level of protection.

### Alternative 2 - Implement the Browns Park CCP (Preferred)

Under this alternative, the Service would implement the CCP and establish the Refuge's direction pursuant to the goals, objectives, and strategies contained in the CCP.

P Restoration of riparian plant communities, control of nonnative plants, improved wetland and upland management, restoration of unproductive wetlands, and development of habitat monitoring methods will result in increased habitat quality and diversity for Refuge wildlife.

P Improvement of visitor use facilities and information will increase public use opportunities on the Refuge.

P Development of interpretive displays and brochures will result in better understanding and appreciation of the Refuge and its importance.

P Increasing Refuge participation in regional management organizations will result in improved support and coordinated protection for wildlife and its habitat within the Green River ecosystem.

Implementation of the Plan within the next 15 years will require additional agency funding for specific objectives, two additional permanent employees, as well as partnerships with other Federal land management agencies, State and local government, private conservation and historical groups, and local landowners. Refer to the Refuge Goals, Objectives, and Strategies sections of the CCP for a detailed description of the proposed actions.

## III. Affected Environment

The affected environment is described in the Resource/Refuge Description sections of the CCP.

## IV. Environmental Consequences

This chapter evaluates the two alternatives on the basis of consequences or impacts to the environment. Alternative 1, "No Action," is the status quo alternative where current conditions and trends of management, public use, and land use and ownership are projected into the foreseeable future. Alternative 2, the preferred alternative, implements the CCP. Analysis of Alternative 2 focuses on anticipated environmental change in comparison to conditions remaining under Alternative 1.

### A. Impacts to the Biological Environment

P Alternative 1 would result in no substantial changes in wildlife populations, habitat quality, or biodiversity as it is described in the CCP. The Refuge would continue its current level of habitat management activity. No new habitat restoration projects would be carried out. Habitat quality and the wildlife populations dependent on these habitats would probably decline slowly as a result of continuing infestation of nonnative plants, and continuing decline in riparian cottonwood regeneration. As Refuge habitats continue to degrade, plant diversity and production will continue to decline, adversely affecting the area's wildlife. Wildlife inventory and habitat monitoring research will not be accomplished with current Refuge staffing.

The Refuge will continue its involvement on the Northwestern Colorado Coordinated Resource Management committees and continue to provide technical support for agencies, organizations, and individuals to benefit the wildlife of the Green River Basin.

P Alternative 2 would result in increased habitat quality in marsh, riparian, and upland habitats throughout the Refuge. As a result, the wildlife species dependent on these habitats will increase or stabilize. Implementing wildlife inventories will allow evaluation of wildlife responses to habitat manipulations.

Controlling emergent vegetation coverage in the Warren and Nelson units, either by burning or managing water levels, will result in an increase of useable marsh habitat for waterbirds. Optimum emergent plant coverage for these marshes should be 50 percent. Currently, the marsh is from 70 to 90 percent covered by vegetation.

Retiring the Horseshoe and Grimes units may appear to decrease available wetland habitat, but as these units were never productive for marsh dependent wildlife, it will not have a significant long-term effect. The cost of pumping water and repairs and maintenance is high, and the areas could serve more efficiently as upland habitats. The largest infestations of nonnative plants on the Refuge occur in these units. Their eradication will benefit a broader range of wildlife over a larger area.

Bulldozing artificial nesting islands in the Hoy wetland unit will remove an "attractive nuisance" making the predation prone area less attractive to nesting ducks.

Designing a prescription for high spring river flows for the Green River in cooperation with the Bureau of Reclamation will restore cottonwood groves and other riparian plant communities along the River. Migratory birds will benefit especially, as this will help maintain the habitat corridors upon which they depend as they pass through the area in the spring and fall.

Development of the Habitat Monitoring Plan and use of the resulting program of prescribed fire will maintain a diverse mosaic of grassland and brushland habitats for wintering ungulates, ground nesting birds, and other resident wildlife.

Acquiring the remaining land tracts within the currently approved Refuge boundary will bring wildlife habitats on these tracts under management control of Refuge staff. Habitat restoration and enhancement will then be possible as described in the CCP. An increase in high quality habitat for wildlife will result.

## B. Impacts to the Physical Environment

P Alternative 1 will have no measurable affect on the soils and air quality of the region. Water quality in Refuge wetlands and riparian areas may degrade slowly as the decline of riparian plant communities expose aquatic organisms to high summer temperatures and possible bank erosion. Overabundant emergent vegetation in Refuge marshes may degrade water quality.

Refuge cultural resources would continue to receive protection under this alternative. Cultural resources are managed according to several Federal Acts and through an agreement with the Browns Hole Homemakers Club. No ground disturbing activities are carried out without consulting the Colorado State Historic Preservation Office. Currently, no plans are in place that will impact historical sites on the Refuge.

P Alternative 2 will result in improved water quality in riparian habitats through restoration of sheltering native willow and cottonwood communities. More efficient control of emergent marsh vegetation will improve water quality resulting in higher quality feeding habitats for marsh dependent birds. With habitat restoration objectives proposed in the CCP, erosion of upland soils will slowly decrease as native upland plant communities are reestablished.

Cultural resource sites will continue to be protected under the CCP. No specific proposals are in place that will affect these sites on the Refuge, although with new partnerships developed as a result of the CCP, identification and restoration of sites would be possible. The Lodore School National Historic Site will continue to be available for use by the Browns Hole Homemakers Club.

## C. Impacts to the Human Environment

P Alternative 1 would allow minor improvements to the existing recreational use program to continue. It would result in no significant changes in use of the Refuge but would not specifically improve education, interpretation, hunting or fishing opportunities for Refuge visitors. The primary road access route from Utah into Browns Park is to be paved in the near future, and the Refuge can expect an increase in visitation and demand for opportunities and facilities. This Alternative does not address the resulting need for improved or expanded recreational facilities.

P Alternative 2 would result in improvements to basic visitor facilities, including interpretive signing, construction of information kiosks, and development of leaflets that clearly describe recreational opportunities, provide wildlife species checklists, give historical information, and explain regulations.

This alternative will also result in major site improvements to the Crook Campground. The campground area currently spreads out over a large area with no site designations or fire protection for cottonwood groves or the Refuge subheadquarters. Implementation of the CCP will result in protection of habitat around the campground and a decreased risk of fire damage to Refuge buildings.

Interpretive displays and signs will be developed to enhance visitors' understanding of the Refuge and its management practices. Improved education of visitors will lead to long-term protection of the Refuge, the wildlife that depends upon its presence, and preserve the cultural and historical sites present in Browns Park.

Implementing the CCP will enable the Refuge to pursue partnerships with the Dinosaur Nature Association resulting in increased support for the wildlife recreation program on the Refuge.

## Appendix E

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## Appendix F

### List of Preparers

This Plan was written by Michael J. Bryant, Refuge Manager and Allison Banks. Map products were generated by Jaymee Fojtik. Drafts were reviewed and edited by Wayne King, Carol Taylor, Larry Shanks, Barbara Shupe, and Allison Banks.



## Appendix G

### Project Description Worksheets



Unfunded Operating Needs - Listed by Station Rank

**Browns Park NWR**  
 Orgcode: 65550      Type: NWR      State(s): CO      District: NE, KS, CO, UT

**1** HABITAT MANAGEMENT: Fire Management

MEASURES: 500 refuge acres burned under prescription; 2 refuge burns will be conducted; 1000 non-refuge acres will be burned under prescription; 15 wildfires will be suppressed

The Refuge is a partner in an interagency fire management agreement that covers northwest Colorado. Involvement in an additional agreement is expected soon covering northeastern Utah. The areas included in the agreements are the most active wildfire areas in the country. Unfortunately, the Refuge lacks adequate housing for its firefighters. This project would fund the construction of a bunkhouse at Refuge headquarters. A four bedroom modular facility with a kitchen and a common room would meet the critical needs of firefighters, as well as provide housing for Regional office support staff, and Refuge interns.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>			
	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	150		
Services/Supplies .....			
Miscellaneous Costs .....		5	
TOTAL Operations Cost .....	150	5	155

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>		FTE's	Cost (\$000)
Managers .....			\$0
Biologists .....			\$0
Resource Specialists .....			\$0
Education/Recreation Staff .....			\$0
Law Enforcement .....			\$0
Clerical/Administrative .....			\$0
Maintenance/Equipment Operation .....			\$0
TOTAL FTEs Needed .....			\$0

**EMPHASIS:** 0% Critical health & safety - deferred maintenance; 90% Critical health & Safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 0% Compliance & other deferred maintenance; 0% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
				100							100

PLANNING LINKS: Station CCP approved 10/97+ ; Other Major Plan; Station Step-down Mgmt Plan

This project supports the Refuge's CCP (draft) and Fire Management Plan.

Project #: 99005 RANK - STATION: 1 DISTRICT: 999 REGION: 999 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**2 PUBLIC EDUCATION AND RECREATION: Provide Visitor Services**

MEASURES: 5000 new visitors will be served; 10,000 existing visitors will be served; 100 % will support the top 6 priority public uses

The remote location of the Refuge makes it difficult for people to pursue wildlife dependent recreation without a campground. Although the Refuge currently has two designated camping areas, more development of one and closure of the other is necessary to minimize issues of fire protection, habitat damage, and maintenance workload. This project would allow site planning and development of the Crook campground including: campsite designation, tables, fire rings, pit toilets, parking areas, and vehicle barriers. Facilities would be accessible to persons with disabilities. Work would be contracted.

**ADDITIONAL FUNDS NEEDED (\$000):**

	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	90		
Services/Supplies .....		5	
Miscellaneous Costs .....		5	
<b>TOTAL Operations Cost.....</b>	<b>90</b>	<b>5</b>	<b>95</b>

**ADDITIONAL PERMANENT STAFF NEEDED:**

	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
<b>TOTAL FTEs Needed .....</b>		<b>\$0</b>

**EMPHASIS:** 12% Critical health & safety - deferred maintenance; 0% Critical health & Safety - capital improvement; 12% Critical resource protection - deferred maintenance; 28% Critical resource protection - capital improvement; 12% Critical mission - deferred maintenance; 6% Compliance & other deferred maintenance; 42% Other capital improvements.

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RW	PED	FAR	PRC	TOT
										100	100

PLANNING LINKS: Station Goal/Objective; Station Step-down Mgmt Plan; Station CCP approved 10/97+

Supports public use objective in CCP

Project #: 97002 RANK - STATION: 2 DISTRICT: 999 REGION: 999 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**3 PUBLIC EDUCATION AND RECREATION: Provide Visitor Services**

MEASURES: 10,000 new visitors will be served; 10,000 existing visitors will be served

The Refuge possesses numerous opportunities for interpretation of nationally significant natural and cultural history, yet these opportunities have been ignored due to funding limitations. Interpretation is needed to help visitors understand the values the Refuge was established to protect. This project would provide this important interpretation by developing: interpretive signs for the wildlife drive and birder's foottrail, interpretive exhibits for the visitor contact area in Refuge headquarters, and a cultural resources brochure.

**ADDITIONAL FUNDS NEEDED (\$000):**

	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations:			
Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....			
Services/Supplies .....			
Miscellaneous Costs .....	50	5	
TOTAL Operations Cost .....	50	5	55

**ADDITIONAL PERMANENT STAFF NEEDED:**

	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTEs Needed .....		\$0

**EMPHASIS:** 0% Critical health & safety; 0% Critical resource protection; 50% Critical mission; 50% Other important needs.

OUTCOMES*:	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
								100			100

PLANNING LINKS: Station Goal/Objective; Station Step-down Mgmt Plan; Station CCP approved 10/97+

Supports objectives and step-down plan in CCP (draft).

Project #: 97003 RANK - STATION: 3 DISTRICT: 187 REGION: 340 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**4 PUBLIC EDUCATION AND RECREATION: Provide Visitor Services**

MEASURES: 5000 new visitors will be served; 10000 existing visitors will be served; 100 % will support the top 6 priority public uses

The Refuge provides remarkable opportunities for wildlife observation in a setting of beauty and solitude. Unfortunately, funding has been inadequate to provide wildlife checklists, and kiosks for orientation. This project would provide the funding, to develop and print a bird checklist, and a mammal, reptile and amphibian checklist, and to construct and install two orientation kiosks. All work would be coordinated through the Education and Visitor Services Branch of Refuges, in Region 6. This project would facilitate wildlife observation on the Refuge. Work would be contracted.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>			
	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	34		
Services/Supplies .....			
Miscellaneous Costs .....	10		
TOTAL Operations Cost .....	44		44

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>		
	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTEs Needed .....		\$0

EMPHASIS: 0% Critical health & safety - deferred maintenance; 0% Critical health & Safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 0% Compliance & other deferred maintenance; 100% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u> 100	<u>TOT</u> 100
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PLANNING LINKS: Station CCP approved 10/97+ ; Station Goal/Objective; Station Step-down Mgmt Plan

Project is supported by goals, objectives and strategies in the CCP (draft).

Project #: 99001 RANK - STATION: 4 DISTRICT: 999 REGION: 999 NATIONAL: 999

\*OUTCOMES:

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**5 HABITAT MANAGEMENT: Pest Plant Control**

MEASURES: 2000 acres will be treated; 2000 acres infested by target species; 2000 acres will be treated chemically; 50 acres will be treated mechanically; 10 acres will be treated biologically

Riverbottom habitat on the Refuge is important to numerous species and numbers of migratory birds for migration and breeding. Pest plants have invaded many riverbottom sites on the Refuge, and are supplanting native plant species that are important to migratory birds. This project would fund the treatment and control of these plants at the scale necessary to reduce their coverage. Work would be contracted. Approximately 1000 acres would be treated annually for approximately 5 years. Such efforts should reduce the pest plant threat on the Refuge to a maintenance level that the Refuge staff is capable of handling.

**ADDITIONAL FUNDS NEEDED (\$000):**

	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations:			
Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....			
Services/Supplies .....			
Miscellaneous Costs .....		25	
TOTAL Operations Cost .....		25	25

**ADDITIONAL PERMANENT STAFF NEEDED:**

	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTEs Needed .....		\$0

**EMPHASIS:** 0% Critical health & safety; 100% Critical resource protection; 0% Critical mission; 0% Other important needs.

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RW	PED	FAR	PRC	TOT
		30	40	30							100

PLANNING LINKS: FWS Ecosystem Goal/Plan; Station Goal/Objective; Station Step-down Mgmt Plan; Station CCP approved 10/97+

Supports habitat objectives in CCP (draft) and ecosystem plan goals.

Project #: 97006 RANK - STATION: 5 DISTRICT: 190 REGION: 276 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**6** MONITORING & STUDIES: Surveys & Census

MEASURES: 10 wildlife surveys will be conducted; 10 habitat surveys will be conducted; 10% of survey will be off-refuge

Refuge habitats are unusually diverse and support over 300 species of wildlife. The Refuge is especially important as a migration corridor for neotropical migratory birds. Current Refuge funding and staff does not allow the application of habitat management treatments and monitoring necessary to provide optimum habitat for wildlife. This project would provide the funding necessary to hire and provide the infrastructure (residence, vehicle, equipment) for a Refuge biologist. A residence would be constructed in year one. An experienced biologist would be recruited in year two.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>			
	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....		56	
Equipment Costs .....			
Facility Cost .....	150		
Services/Supplies .....			
Miscellaneous Costs .....			
TOTAL Operations Cost .....	150	56	206

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....	1.0	\$56
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....	1.0	\$56

**EMPHASIS:** 0% Critical health & safety- deferred maintenance; 0% Critical health & safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 0% Compliance & other deferred maintenance; 100% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
		10	10	40	10		10	10		10	100

PLANNING LINKS: Station Goal/Objective; Station CCP approved 10/97+ ; FWS Ecosystem Goal/Plan; Station Step-down Mgmt Plan ;

Supports numerous goals, objectives and strategies in the CCP (draft).

Project #: 97007 RANK - STATION: 6 DISTRICT: 999 REGION: 999 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**7 PUBLIC EDUCATION & RECREATION: Provide Visitor Services**

MEASURES: 50 new visitors will be served; 25 existing visitors will be served; 100 % will support the top 6 priority public uses.

Federal law requires that the Refuge be fully accessible to persons with disabilities. Progress has been made, but work remains to make the Refuge fully accessible. New facilities must also be accessible. This project would provide the funding necessary to complete accessibility modifications and developments on the Refuge. Work would be contracted.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	20		
Services/Supplies .....			
Miscellaneous Costs .....			
TOTAL Operations Cost .....	20		20

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

**EMPHASIS:** 0% Critical health & safety- deferred maintenance; 0% Critical health & safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 0% Compliance & other deferred maintenance; 100% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
								50		50	100

PLANNING LINKS: Station CCP approved 10/97+ ; Station Goal/Objective; Station Step-down Mgmt Plan; Legal Mandate

This project is supported by objectives and strategies in the Refuge's CCP (draft).

Project #: 99003 RANK - STATION: 7 DISTRICT: 999 REGION: 999 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**8** HABITAT RESTORATION: Wetland Restoration

MEASURES: 300 Refuge acres will be restored.

Wetland units were created in the Horseshoe and Grimes areas of the Refuge. Although great efforts were made to get these units to function, ultimately neither unit held water to the degree necessary to be beneficial to wildlife, and instead these areas became infested with pest plants. This project would restore the previous topography and native grass and shrubs in the Grimes and Horseshoe marsh units. Old dikes, powerpoles, delivery ditches and pump stations would be removed. Native grass and shrubs would be reestablished. Work would be contracted.

ADDITIONAL FUNDS NEEDED (\$000):

	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations:			
Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....			
Services/Supplies .....	70		
Miscellaneous Costs .....		5	
TOTAL Operations Cost .....	70	5	75

ADDITIONAL PERMANENT STAFF NEEDED:

	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

EMPHASIS: 0% Critical health & safety; 50% Critical resource protection; 50% Critical mission; 0% Other important needs.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
			10	70			10			10	100

PLANNING LINKS: Station Goal/Objective; Station Step-down Mgmt Plan; FWS Ecosystem Goal/Plan; Station CCP approved 10/97+

Supports objectives and goals in CCP (draft) and in Ecosystem plan.

Project #: 97005 RANK - STATION: 8 DISTRICT: 189 REGION: 289 NATIONAL: 999

\*OUTCOMES:

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**9** HABITAT RESTORATION: Wetland Restoration

MEASURES: 50 Refuge acres will be restored.

The Hoy wetland unit on the Refuge provides excellent habitat for great numbers and species of migrating and breeding waterfowl and waterbirds. Approximately 50 small islets were created near the Hoy dike years ago. Nest monitoring revealed that the nesting success of ducks on the islets was so low that they were a "sink" for the breeding population. This project would fund the flattening of these islets to remove the sink. The wetland would be drawn down until conditions are safe to use heavy equipment in the wetland basin. A dozer and/or scraper would be used to level the islets. Work would be contracted.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....			
Services/Supplies .....	30		
Miscellaneous Costs .....			
TOTAL Operations Cost .....	30		30

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

**EMPHASIS:** 0% Critical health & safety; 100% Critical resource protection; 0% Critical mission; 0% Other important needs.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
		70	30								100

PLANNING LINKS: Station Goal/Objective; Station Step-down Mgmt Plan; Station CCP approved 10/97+

This project addresses an objective in the Refuge's CCP

Project #: 97010 RANK - STATION: 9 DISTRICT: 192 REGION: 291 NATIONAL: 999

**\*OUTCOMES:**

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**10 PUBLIC EDUCATION & RECREATION: Provide Visitor Services**

MEASURES: 5000 new visitors will be served; 10000 existing visitors will be served; 100 % will support the top 6 priority public uses

The Refuge has great potential for wildlife photography, yet the facilities to allow people to get close to wildlife are lacking. This project would provide the funding to construct a boardwalk and wooden photography/wildlife observation blind on the edge of the Spitzie wetland on the Refuge. Work would be contracted.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>			
	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations:			
Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	45		
Services/Supplies .....			
Miscellaneous Costs .....		5	
TOTAL Operations Cost .....	45	5	50

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>		
	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

EMPHASIS: 0% Critical health & safety- deferred maintenance; 0% Critical health & safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 0% Compliance & other deferred maintenance; 100% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
										100	100

PLANNING LINKS: Station CCP approved 10/97+ ; Station Goal/Objective; Station Step-down Mgmt Plan; FWS Ecosystem Goal/Plan

This project supports goals, objectives and strategies in the Refuge's CCP (draft).

Project #: 99002 RANK - STATION: 10 DISTRICT: 999 REGION: 999 NATIONAL: 999

\*OUTCOMES:

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

**11** HABITAT MANAGEMENT: Water Level Management

MEASURES: 300 existing acres will be managed better

The Flynn and Hog Lake wetland units provide excellent migratory and breeding habitat for waterfowl and other waterbirds. Unfortunately their potential for management is limited due to the lack of an outlet water control structure. Outlets on these two wetland units would provide more precise management of water levels in these wetlands. This project would provide the funding to construct a water control structure outlet and outlet ditch for each wetland. Work would be contracted.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....	50		
Services/Supplies .....			
Miscellaneous Costs .....			
TOTAL Operations Cost .....	50		50

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

EMPHASIS: 0% Critical health & safety- deferred maintenance; 0% Critical health & safety - capital improvement; 0% Critical resource protection - deferred maintenance; 0% Critical resource protection - capital improvement; 0% Critical mission - deferred maintenance; 50% Compliance & other deferred maintenance; 50% Other capital improvements.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
	10	70	10				10				100

PLANNING LINKS: Station CCP approved 10/97+ ; Station Goal/Objective; Station Step-down Mgmt Plan

Project supports goals, objectives and strategies in the Refuge's CCP (draft).

Project #: 99004 RANK - STATION: 11 DISTRICT: 999 REGION: 999 NATIONAL: 999

\*OUTCOMES:

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

12 MONITORING & STUDIES: Surveys & Censuses

MEASURES: 2 wildlife surveys will be conducted

Also includes work on Arapahoe, Bamforth, Pathfinder, Hutton Lake, and Mortenson Lake NWRs

Mountain Plovers have been observed on Browns Park NWR and the four satellite stations on Arapahoe NWR during nesting season. Surveys of the refuges to document numbers of birds nesting and fledgling success have not occurred. This plover species is endangered and a rule to protect the species under Endangered Species Act has been prepared by Region 6. The refuges will document nesting locations and dates to assure refuge management and public use are not causing nesting failures. Fire, grazing and other grassland management techniques can enhance the habitat for plover recovery and protections of other grassland species.

<u>ADDITIONAL FUNDS NEEDED (\$000):</u>	One-Time	Recurring Base	First Year Need
Construction Costs .....			
Operations: Personnel Costs .....			
Equipment Costs .....			
Facility Cost .....			
Services/Supplies .....			
Miscellaneous Costs .....			
TOTAL Operations Cost .....			

<u>ADDITIONAL PERMANENT STAFF NEEDED:</u>	FTE's	Cost (\$000)
Managers .....		\$0
Biologists .....		\$0
Resource Specialists .....		\$0
Education/Recreation Staff .....		\$0
Law Enforcement .....		\$0
Clerical/Administrative .....		\$0
Maintenance/Equipment Operation .....		\$0
TOTAL FTE's Needed .....		\$0

EMPHASIS: 0% Critical health & safety; 0% Critical resource protection; 0% Critical mission; 100% Other important needs.

<u>OUTCOMES*:</u>	<u>ES</u>	<u>WF</u>	<u>OMB</u>	<u>HEC</u>	<u>IAF</u>	<u>SDA</u>	<u>RW</u>	<u>PED</u>	<u>FAR</u>	<u>PRC</u>	<u>TOT</u>
	100										100

PLANNING LINKS: Station Goal/Objective

Maximizing habitat for grassland nesting birds is in the Station Goals/Objectives in the Draft CCP

Project #: 97001 RANK - STATION: 12 DISTRICT: 999 REGION: 24 NATIONAL: 1

\*OUTCOMES:

- |   |                                 |
|---|---------------------------------|
| ES - Endangered & threatened species        | SDA - Special designation areas |
| WF - Waterfowl                              | RW - Resident wildlife          |
| OMB - Other migratory birds                 | FAR - Fish/aquatic resources    |
| HEC - Healthy ecosystems                    | PED - Public education          |
| IAF - Interjurisdictional & anadromous fish | PRC - Public recreation         |

STATION FUNDING NEED TOTALS (\$000):

	<u>One-Time</u>	<u>Recurring Base</u>	<u>First Year Need</u>
Construction Costs .....			
Operations: Personnel Costs .....		\$56	
Equipment Costs .....			
Facility Cost .....	\$539		
Services/Supplies .....	\$100		
Miscellaneous Costs .....	\$ 60	\$50	
TOTAL Operations Cost.....	\$699	\$106	\$805

ADDITIONAL PERMANENT STAFF NEEDED:

	<u>FTE's</u>
Managers .....	
Biologists .....	1.0
Resource Specialists .....	
Education/Recreation Staff .....	
Law Enforcement .....	
Clerical/Administrative .....	
Maintenance/Equipment Operation .....	
TOTAL FTE's Needed .....	1.0



## Appendix H

### Compatibility Determination

Prior to preparation of this CCP, numerous environmental assessments and compatibility determinations had been completed on all Refuge uses and activities. No new uses are proposed in the CCP. Policy governing compatibility determinations is currently under revision, and when the new policy is final, all previous determinations will be reviewed for compliance.



## Appendix I

### Section 7 Consultation

Intra-Service Section 7 consultation has been initiated with the Utah Field Office and will be completed prior to final approval of this Plan.



## Appendix J

### Mailing List of Agencies and Individuals

#### Federal Officials

- P US Senator Wayne Allard  
Andy Colosimo, Senate Aide, Grand Junction, CO
- P US Senator Ben Nighthorse Campbell  
William Groffy, Senate Aide, Grand Junction, CO
- P US Representative Scott McInnis  
Jake Zambrano, Special Assistant, Grand Junction,  
CO

#### Federal Agencies

- P USDI/Bureau of Land Management, Little Snake  
Resource Area, Craig, CO
- P USDI/Bureau of Land Management, Vernal  
District, Vernal, UT
- P USDI/Bureau of Reclamation, Salt Lake City, UT
- P USDA/Natural Resources Conservation Service,  
Craig, CO
- P USDA/Forest Service, Ashley National Forest,  
Flaming Gorge Ranger District, Vernal, UT
- P USDA/Forest Service, Routt National Forest, Bears  
Ears Ranger District, Steamboat Springs, CO
- P USDI/National Park Service, Dinosaur National  
Monument, Dinosaur, CO
- P USDI/Fish and Wildlife Service, Denver, CO;  
Albuquerque, NM; Portland, OR; Anchorage, AK;  
Fort Snelling, MN; Atlanta, GA; Hadley, MA;  
Washington, D.C.
- P USGS/Biological Resources Division, Doug  
Anderson, Fort Collins, CO

#### State Officials

- P Governor Bill Owens, Denver, CO
- P Senator Dave E. Wattenberg, Walden, CO
- P Representative Russell Lloyd George, Rifle, CO

#### State Agencies

- P Colorado Division of Wildlife, District Wildlife  
Manager, Maybell, CO
- P Colorado Division of Wildlife, Area Manager,  
Meeker, CO
- P Colorado Division of Wildlife, Director, Denver, CO
- P State Historical Preservation Office of Colorado,  
Denver, CO

#### City/County/Local Governments

- P Mayor, City of Craig, CO
- P City Council, City of Craig, CO
- P Moffat County Commissioner, Joe Janosec, Craig,  
CO
- P Moffat County Commissioner, T. Wright Dickinson,  
Craig, CO
- P Moffat County Commissioner, Marianna  
Raftopoulos, Craig, CO

#### Libraries

- P Craig Library, Craig, CO

#### Organizations

- P Cooperative Alliance for Refuge Enhancement  
(CARE), Washington, DC
- P National Wildlife Refuge Association, Denver, CO
- P Craig Area Chamber of Commerce, Craig, CO
- P The Wildlife Society, Colorado Chapter, Denver, CO
- P Colorado Wildlife Federation, Denver, CO
- P Ducks Unlimited, Craig, CO
- P Browns Park Sportsmens Club
- P Browns Hole Homemakers Club
- P Society for Conservation Biology, Colorado Plateau  
Chapter, Grand Junction, CO
- P Audubon Society, Gretchen Muller, Washington, DC
- P Wilderness Society, Washington, DC
- P Colorado Environmental Coalition, Grand Junction,  
CO
- P The Nature Conservancy, Carpenter Ranch,  
Hayden, CO
- P Northwest Colorado Coordinated Resource  
Management, Reed Kelley, Meeker, CO

#### Newspapers

- P The Craig Daily Press, Craig, CO
- P The Rock Springs Rocket-Miner, Rock Springs, WY
- P The Vernal Express, Vernal, UT
- P The Steamboat Pilot, Steamboat Springs, CO

#### Universities/Colleges

- P Colorado State University, Department of Fishery  
and Wildlife Biology, Ken Wilson, Fort Collins, CO
- P Colorado State University, Department of Earth  
Resources, David Cooper, Fort Collins, CO
- P Western Wyoming College, Rock Springs, WY
- P Northwest Colorado Community College, Rangely,  
CO
- P Utah State University, Rich Etchberger, Vernal, UT
- P University of Wyoming, Department of Zoology,  
Laramie, WY

## Individuals

Barnum, Bruce  
Benton, Petronella  
Blevins, Fred and Joy  
Blevins, Richard  
Comstock, Chris  
Crane, Allen  
Dickinson, T. Wright  
Folk, Neil  
Getman, Mike  
Giannotti, Lynda  
Karges, Robert  
Kostinec, Terry  
Langer, Greg  
Luke, Forrest  
McKinney, Brad  
Meinke, James  
Raftopoulos, John and Marianna  
Simpson, Bob and Dorothy  
Smith, Cliff and Lenora  
Walker, Wanda

Browns Park National Wildlife Refuge  
1318 Highway 318  
Maybell, CO 81640  
970/365 3613  
r6rw\_brp@fws.gov

U. S. Fish and Wildlife Service  
<http://www.fws.gov>

For Refuge Information  
1 800/344 WILD

March 1999

